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AUG 21 2008

Docket No.: 56925(71745)  
(PATENT)**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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In re Application of: T. R. K. EDWARDS et al.

Application No.: 10/049,488

Confirmation No.: 4085

Filed: July 22, 2002

Art Unit: 1797

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For: SAMPLING/DISPENSER DEVICE WITH  
PLUNGER AND HOUSING SET ONTO  
PLUNGER

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Examiner: Ludlow, Jan M.

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**DECLARATION UNDER 37 CFR 1.132**

The undersigned declares as follows:

1. I, Dr David Parnell, declare that I am a resident of the United Kingdom. My residential address is 8 Greenford Close, Orwell, Royston, Herts SG85QA.

2. I have been asked to consider US Patent Application No 10/049,488 ('488) and the objections raised by the Examiner with respect to Hughes 3,882,665. I am a professional Materials Technologist by training and my qualifications are BSc (Tech) Hons (1<sup>st</sup>) and PhD and was a Member of the Institute of Materials, Metals and Minerals for 38 years. My curriculum vitae is attached as Exhibit 1.

3. I have read both the granted patent and patent application together with the Office Action correspondence. I should like to set out my opinion on the points of contention.

BOS2 685807.1  
BOS2 686604.1

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4. The principle of coating a metallic wire with a polymeric layer to provide electrical, mechanical, or chemical protection of the core is well established and is used in a number of industrial and consumer applications such as telephone wires, electrical power cables and the like.
5. The inventive step in '488 is to apply this technology, not for the protection of the wire, but to use the two components – the polymeric layer and the metallic core – as the barrel and piston of a dispensing or aspirating device.
6. The essential test of obviousness would appear to hinge on whether it is apparent that by using a means of protecting a flexible or rigid wire with a polymeric coating and then introducing relative motion between the two components, a positive displacement pipette device can be realised. The claimed advantage of this invention is that a piston/barrel combination so formed can be made where the barrel closely conforms to the piston without the more usual need to machine one component to match the other or the subsequent need to assemble the two parts either manually or automatically. The piston/barrel combination is formed in a single operation with the bore of the barrel exactly conforming to the outer diameter of the piston.
7. The Examiner has claimed that one skilled in the art can infer from the commonplace coating of a filament that a dispensing/pipetting device could be constructed and makes specific reference to Hughes 3,882,665 ('665) to support this argument. With respect, I wish to offer the counter view which is that Hughes fails to teach a dispensing/aspirating device either by direct reference or by implication.

In particular:

7.1 '665 makes specific reference to a method of making a flexible steel cable for use in the oil industry. It is used to connect a rocking beam to a pump many metres below ground. The cable is shown in Fig 1 as 17. The pump is shown as 15 and the cable connects to the motive power at 31.

The cable is intended solely to transfer tensile effort from one point to another. Its only

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link with fluid handling is that it couples an oil pump to its source of motive power.

7.2 There are two forms of coated wire in the claimed method of manufacture. The first is a polymeric coating applied to the individual wires which make up the spun cable. The second is the outer coating of polymer which forms the outer jacket and which protects the inner cores. In neither case do I believe it is either apparent or possible for the coating to move longitudinally with respect to the inner filament. Indeed, were there to be significant longitudinal movement, it is likely that the pumping strand would fail from internal abrasion.

7.3 It is apparent from Figs 2 and 3 in '665 that the inner wires do not exist in isolation but form part of a spirally twisted assembly (21). The spiral winding is primarily to provide mechanical stability but its use means that considerable internal radial pressure is exerted by each wire upon its neighbours which compresses their coating on to the inner wire. Even in the absence of the primer which Hughes stresses is necessary for bonding, it would, in my view, be impractical to move any individual wire with respect to its polymeric coating and it would not be obvious to the reader of '665 that such motion could be achieved.

7.4 The outer jacket (23) which coats the spirally wound core (21) presents similar obstacles to the teaching of a dispensing/pipetting device. The method of co-extruding the polymeric jacket shown in Fig 4b (145) results in the polymer entering the interstices between those inner wires which form the outer surface of the spirally wound cable. The resulting large contact area coupled with the helical nature of the interface between covering and core make it impractical to move the core longitudinally within the covering. Again, I believe it would not be obvious to the reader of '665 that such motion could be achieved.

7.5 The outer jacket (23) embodies two other features of the invention which make it impossible to be used as a dispenser/pipetting device.

Firstly, the outer jacket is perforated at intervals both circumferentially and longitudinally to prevent pressure build up. Fluid is free to flow between the core of the cable and the outside world (p5 - 1). These perforations make it impossible for such a device to act as a dispenser/pipetter because it is the increase or decrease of pressure inside the barrel that enables the pipetting/dispensing action.

Secondly, the spirally wound nature of the inner core (21) means that there are interstices between individual wires and these form passages through which liquid can flow. This is akin to having a dispensing/pipetting device where the piston has a number of holes drilled through it.

For the two reasons set out in 7.5, and following the logic put forward in 7.1 through 7.4, I do not believe that Hughes teaches the possibility of forming a dispensing/pipetting device from a polymeric coating on a wire.

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In response to the specific objections made against 488:

8. (Office Action para 8) The examiner states that the 'wires are joined together in a strip'. With respect this is not the case. The individual wires are twisted together in a spiral lay by conventional rope-making equipment as depicted in Fig 4b. Since they are twisted together they cannot be used independently as '488 (page 3 – lines 21-23) implies.
9. (Office Action para 8) The examiner states that the apertures in the outer cover (24) are akin to the sprocket holes (12) of Fig 4 in '488. As was pointed out in 4.5, these holes are intended solely for the equilibration of pressure and not to provide axial drive force. Moreover, were they to be used in this fashion they would not allow the individual inner cores (19) to be spatially addressable as depicted in Fig 4 of '488.
10. (Office Action para 8) The examiner states that the coating of the wire is to 'facilitate movement and adjustment'. With respect I should like to suggest that the examiner has misunderstood the description contained in '665 (column 1 lines 32 – 35). The movement and adjustment stated is bending motion to allow the strand to be transported and to be retrieved from the drilling hole. A spirally laid, multistrand, coated cable will naturally flex in bending but this does not imply nor teach relative coaxial movement of core and coating such as would be necessary for a piston-type pipette to function.
11. (Office Action para 8) The examiner states 'that there is no claim directed to the method of use' in support of the view that the invention of Hughes, when subject to the modification of notionally removing the use of primer, is structurally capable of being used as a plunger type pipette.

Claim 1 of '665 refers to 'A flexible pumping strand'. The terms 'pumping strand' and 'strand' are standard terminology in the oil industry (see *API SPEC 9A Specification for Wire Rope* for example) for the cable that mechanically links a down-hole pump to its surface motive power. I believe it would be apparent to the reader of '665 that the invention applies specifically to a method of use where longitudinal motion between wire core and outer coating would be both unnecessary and undesirable. It would not therefore, in my view, contribute to the discovery of the inventive steps embodied in '488.

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12. I hereby further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both (18 U.S.C. 1001), and that such willful false statements may jeopardize the validity of the above-identified Application or any patent issued thereon.

Date: 31st July 2008David G Parnell  
David Parnell, Ph.D.

## CV of David G Parnell

### Directorships

#### Current:

The Automation Partnership Group plc – supplier of capital equipment for drug discovery – commenced appointment 1998, role non-executive deputy chairman  
Roslin Foundation – Fund raising and management of research centre for studies relating to animal genetics and development - commenced appointment 2006, role non-executive director and trustee (charity and company limited by guarantee)  
N W Brown Group Ltd – provider of financial services to private and corporate clients - commenced appointment 2007, role non-executive chairman

#### Past:

Acumen Bioscience Ltd – instrumentation for pharmaceutical industry  
Apocyte Ltd – research into cell signalling  
Melbourn Science Park Ltd – owner of 17 acre science park, landlord  
Odem Ltd – JV to exploit piezo aerosol generation technology for drug delivery  
Roslin Institute (Edinburgh) – research centre for studies relating to animal genetics and development – non executive  
TTP Carry Ltd – company to hold carried interest from venture fund  
TTP Group plc – holding company for consulting and product development businesses  
TTP LabTech Ltd – special purpose equipment and instruments for pharmaceuticals industry  
~~TTP Venture Managers Ltd – management company for venture capital fund~~

### Employment

#### The Technology Partnership

December 1987 – March 2007

Director of TTP Group plc (executive director)

#### PA Technology & Science Centre

August 1974 – December 1987

**Education****Secondary education**

**School:** Morgan Academy, Dundee, Scotland  
**Period:** 1962 - 1968  
**Qualifications:** O Levels - 7  
Highers 4 A grade, 2 C grade (Scottish equivalent of A levels)  
Cert of VI Form Education Physics  
Dux medal in Chemistry

**Higher Education**

**University:** University of Sheffield  
**Period:** Oct 1968 to June 1971  
**Course:** Materials Technology  
**Degree:** BSc (Tech) First Class  
Frank Holland Memorial Prize

**University:** University of Sheffield but based at UKAEA Harwell  
**Period:** September 1971 - July 1974  
**Degree:** PhD  
**Subject:** Constitution of Fast Reactor Fuels  
Berthold Eichler Memorial Prize